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1 RECORD OF ORAL HEARING
2
3 UNITED STATES PATENT AND TRADEMARK OFFICE
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5
6 BEFORE THE BOARD OF PATENT APPEALS
7 AND INTERFERENCES
8

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10 Ex parte SIMON C. WATT and LUC ORION
11

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13 Appeal 2008-5801
14 Application 10/714,483
15 Technology Center 2100
16

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18 Oral Hearing Held: March 18, 2009
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22 Before HOWARD B. BLANKENSHIP, JAY P. LUCAS, and THU A.
23 DANG, Administrative Patent Judges
24

25 ON BEHALF OF THE APPELLANTS:
26

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32 The above-entitled matter came on for hearing on Wednesday, March
33 18, 2009, commencing at 9:00 a.m., at The U.S. Patent and Trademark
34 Office, 600 Dulany Street, Alexandria, Virginia, before Victor Lindsay.

35 MS. BOBO-ALLEN: Calendar No. 24, Appeal No. 2008-5801. Mr.
36 Spooner.

37 MR. SPOONER: Good morning.

1 JUDGE BLANKENSHIP: Good morning, Mr. Spooner. You have
2 20 minutes, and you can begin when you like.

3 MR. SPOONER: Okay. I'm here representing the assignee of record,
4 ARM Limited. The problem that this invention is directed to is where you
5 have confidential data on a computer system, you generally have secure
6 domains and nonsecure domains. When you're monitoring data processes to
7 find faults that may occur, you, you use debug and trace programs
8 conventionally to determine if there is a problem. When such programs are
9 applied to computers having secure and nonsecure domains, it's possible that
10 there could be confidential data leakage from the secure domain over to the
11 nonsecure. So that's the problem that we're addressing here in this, in this
12 invention.

13 Claims are fairly straightforward. The independent method claim 1 is
14 sort of mirrored in the processor claim 20 language. Claim 1 says basically
15 three steps or, or four steps actually, controllably monitoring the processor in
16 each of the two domains, in other words, in both the secure and the
17 nonsecure domains. Setting at least one control value relating to a condition
18 indicative of whether said monitoring function is allowable in the first
19 domain. So the control value is set to determine -- and, and it's based on
20 whether the monitoring function is allowable in the first domain. Then you
21 have two steps, allowing initiation and not allowing initiation. You allow
22 initiation of the monitoring function in the domain if the condition is
23 present -- when the condition is present if its control value, related control
24 value indicates that the monitoring function is allowable. You don't allow
25 initiation of the monitoring function in that domain when the condition is

1 present and the related control value indicates that the monitoring function is
2 not allowable. So the control value is the thing that, that sets this.

3 JUDGE LUCAS: I'm sorry. The monitoring is done in the secure or
4 the nonsecure domain?

5 MR. SPOONER: The, the last two clauses of the claim relate to the
6 first domain. That, that presumably is the secure domain. It's not specified.
7 It just says first and second domain, but that's presumably the, the secure.

8 So those two allowing steps are, are you allow initiation if the related
9 control value indicates that monitoring is allowable or if the related control
10 value indicates that monitoring is not allowable.

11 And so an issue came up in the, in the appeal brief and, and you'll note
12 that is what the Examiner considers the control value to be disclosed in the
13 Angelo reference. Just a little bit about the two references. Both of them
14 deal with data processors. There's no doubt. The Alverson reference
15 teaches data processing that operates without interrupt notification. So
16 whenever there is an interrupt, there isn't necessarily notification of that
17 interrupt so any -- this monitoring stuff isn't really going to occur. The
18 Examiner admits that Alverson fails to disclose particular information about
19 monitoring. In fact, we have challenged him all the way through
20 prosecution to point out where it shows these features of monitoring or
21 setting, and he can't or he hasn't. But his admission that it fails to disclose
22 particular information about monitoring is particularly telling.

23 By the way, if you go back and look at the claim, if it doesn't teach the
24 monitoring, how in the world can it teach the setting step which is, which is
25 based upon what you -- how you want to monitor?

1 Also, Alverson -- the Examiner doesn't allege that Alverson contains
2 any teaching about the, the not allowing initiation step. So those are three
3 features that just aren't in Alverson that are in -- that are positively recited in
4 the claim.

5 All right, look at Angelo. The Examiner directs the attention to
6 column 7 beginning at line 58. However, the Examiner doesn't indicate any
7 teaching in Angelo which he contends discloses the, the controllably
8 monitoring step or the setting, a control value step. But the Examiner does
9 in his answer, he does -- we were speculating that, that the Examiner might
10 have meant the SMI signal in Angelo to be the equivalent of the control
11 value, and the Examiner was kind enough in the answers to confirm that,
12 that yes indeed our speculation was correct.

13 However, he, he doesn't -- so Angelo -- the, the problem is that SMI is
14 an activation signal. It's a yes or no. It's a, it's a go, no-go signal. It's not
15 set. It's applied when you want to do something, when you want that
16 particular thing done, but it's not set. It's not a value of any sort. Clearly,
17 Angelo -- he doesn't allege that Angelo teaches the not allowing feature. So
18 again, we have three features of the claim, three of the four features of claim
19 1, that isn't -- that aren't disclosed anywhere in Angelo.

20 Now the Examiner comes back and, and he says that it's inherent that
21 Angelo teaches that a storage element is an inherent aspect of the invention,
22 because the SMI signal must be stored somewhere. He's actually wrong
23 there, because the SMI is not a storage signal. SMI is merely a signal that
24 goes high or low to cause actions to occur but is never stored anywhere. So
25 his argument that it's stored somewhere just is unsupported by the document
26 itself.

1 All right, so let's turn to the Examiner's arguments. He, he suggests
2 that all of the steps are shown in the --

3 JUDGE LUCAS: I'm, I'm sorry. Where did it say that your control
4 value is stored in the claim?

5 JUDGE BLANKENSHIP: We're talking about claim 1 and 20 I think
6 and --

7 MR. SPOONER: And, and in claim 1, the second subparagraph,
8 setting at least one control value, so you set that value, set at least one
9 control value relating to a condition. That's the condition and being
10 indicative of whether the monitoring function is allowable in the first
11 domain, your secure domain.

12 JUDGE BLANKENSHIP: Well, claim 20 requires the storage
13 element in --

14 MR. SPOONER: Excuse me?

15 JUDGE BLANKENSHIP: Claim 20 requires a storage element.

16 MR. SPOONER: Yes, yes, sir, but that's --

17 JUDGE BLANKENSHIP: I think the Examiner's point is that when
18 this interrupt is set that the bit to set the interrupt has to be stored
19 somewhere, at least momentarily, like a bit in a register.

20 MR. SPOONER: But it's not set and it's not stored. You, you put the
21 line high to activate it. You put it low to deactivate it. It's never stored
22 anywhere.

23 JUDGE BLANKENSHIP: Well, it doesn't activate or deactivate
24 itself, so something in the system has to set it?

1 MR. SPOONER: That's right, it's set, but it's not stored. You don't
2 store that information anywhere. It's a yes or a no. Turn on the SMI or turn
3 off SMI.

4 JUDGE BLANKENSHIP: What turns it on?

5 MR. SPOONER: You may have a transistor that is activated by
6 another signal, but it's not stored in that transistor. It just goes high. It's a
7 signal that goes high.

8 JUDGE BLANKENSHIP: Well, the transistor -- what turns on the
9 transistor?

10 MR. SPOONER: A signal from somewhere else in data process, but
11 it's not stored.

12 JUDGE BLANKENSHIP: That just appears out of --

13 MR. SPOONER: Oh, no, it's responsive to this, this monitoring
14 function that's in claim 1. You're controllably monitoring the process or
15 operating in the two domains, and then you set at least one control value, so
16 you do have a control value that is stored. In, in Angelo, he talks about in
17 that column 7 SMIs. He says up at line 46, 7, originally SMIs were power
18 management interrupts devised by Intel for portable systems. Portable
19 computers draw power to maximize battery life, and SMI is typically
20 asserted. In the data processing world when they say something is asserted,
21 that means it is applied. It's, it's a yes or no. It's a high or low on a signal
22 line that activates something. So you have, you have a series of steps, and
23 this particular step is asserted, is activated, but it's not stored anywhere.

24 JUDGE BLANKENSHIP: Well, again something has to activate the
25 signal line.

26 MR. SPOONER: Sure, and, and that can be another --

1 JUDGE BLANKENSHIP: So that's usually a register or, or
2 something in memory that --

3 MR. SPOONER: It, it doesn't have -- no, not at all.

4 JUDGE BLANKENSHIP: That sets from a zero to a 1.

5 MR. SPOONER: There is a sequence of steps that are taking place in
6 this computer, data processor, and one of those steps says assert or do not
7 assert, and you evaluate all of the inputs, decide whether to assert or not
8 assert, and those may all go into an adder, and if they're all present, then the
9 adder puts an output. Its output is assert or if it -- if they don't have all the
10 necessary inputs, it doesn't produce that output, so it produces a low. But it
11 produces either a high or a low output, and that's the assertion of the SMI.
12 That's the yes or no that says go or not go. And that's, that's all that Angelo
13 is talking about.

14 I mean look at the next paragraph beginning at line 56. SMIs are
15 asserted by either an SMI timer, by a system request or by other means. But
16 it's not, it's not stored at all. It's a yes or no. It's, it's a do this or don't do
17 this, but you don't store it. It's just the consequence of all of the adders and
18 NAND gates and whatever upstream that conclude that you want to assert
19 this SMI, this system management interrupt.

20 Okay, so, so that's the -- so the Examiner is just, just incorrect in that
21 assertion, but that's really tangential to the, to the whole issue, because the
22 Examiner doesn't meet his burden of showing us where these features are.
23 He talks about things that you could confuse to be features of the invention,
24 but for example, he says -- he concludes that the SMI is the control value.
25 Well, based upon his admission that that's the control -- that he thinks that's
26 the control value of the claim, then the Angelo reference always monitors. It

1 has to. You can never have it not, not monitoring and, and he actually
2 admits that in the appeal brief -- or excuse me, the Examiner's Answer on
3 page 17 down at section D there, the last two lines on that page. He says the
4 Examiner agrees that the monitoring is always allowed when the SMI is
5 asserted, and the processor enters into SMM. If it's always asserted, if the
6 control value is the SMI, and SMI is always asserted, how can you have a
7 control value that says it's not asserted, not allowing initiation of the
8 monitoring function?

9 JUDGE BLANKENSHIP: Well, it doesn't say that SMI is always
10 asserted.

11 MR. SPOONER: No, he says. He says it's always allowed.
12 Monitoring is always allowed when SMI is asserted.

13 JUDGE BLANKENSHIP: Right.

14 MR. SPOONER: So -- and then he says but somehow monitoring
15 isn't allowed when the SMI is asserted. If SMI is the control value --

16 JUDGE BLANKENSHIP: He says when SMI is not asserted, page 18
17 of the answer.

18 MR. SPOONER: When is SMI not asserted? SMI, whenever you
19 want this, this interrupt, this interrupt to assess the situation, you assert the
20 SMI by the timer or the system request or the other means. So it's always --

21 JUDGE BLANKENSHIP: Well, you said -- well, it's not always
22 asserted. It's asserted or it's not.

23 MR. SPOONER: That's our claim. That's our invention. Angelo, by
24 virtue of the fact that the Examiner suggests that SMI is always allowed --

25 JUDGE BLANKENSHIP: No, he says that monitoring is always
26 allowed.

1 MR. SPOONER: Monitoring is always allowed, exactly.

2 JUDGE BLANKENSHIP: When SMI is asserted.

3 MR. SPOONER: Right, and SMI is asserted whenever you have an
4 interrupt.

5 JUDGE LUCAS: Okay, I think we understand his point. I think
6 there's other things that he may -- we understand your point, your point of
7 view on this.

8 MR. SPOONER: Oh, okay. All right. I, I didn't want to get too
9 bogged down in it but -- so, so basically what we have is, as pointed out in
10 our briefs, we have three of the four method steps that aren't shown in either
11 Alverson or Angelo. So firstly, there is no prima facie case of obviousness,
12 because he's got to show those features to be disclosed in the prior art.
13 Secondly, KSR requires there to be some explicit analysis by the Examiner
14 with respect to his rationale for picking and choosing elements and then
15 combining them in the manner of Applicant's claims. I don't think he's done
16 that. He's just merely drawn a conclusion that because these are vaguely
17 related to data processors and interrupts, it would be obvious to combine
18 these somehow.

19 And finally, his language in the, in the Angelo -- with reference to the
20 Angelo reference and the fact that it teaches that monitoring is always
21 allowed whenever it's asserted, whenever the SMI is asserted, that clearly
22 leads away from our claim requirement that the control value, i.e. the SMI,
23 sometimes says it's asserted and sometimes says it's not. Because he
24 concludes that the control value is SMI when SMI is asserted, monitoring is
25 always allowed. So he teaches away from this controllably monitoring

1 something. And so even if there were a prima facie case of obviousness,
2 that teaching away we believe rebuts the prima facie case.

3 Any questions? Any other questions? Are, are we all as confused as I
4 am?

5 JUDGE LUCAS: No, no, I understand your point of view.

6 MR. SPOONER: Okay. All right.

7 (Whereupon, the hearing concluded on March 18, 2009.)